



Retrofitting Buildings: “The Energy-Efficient Economy”

Stephen Cowell, CSG
September 13, 2010



Conservation Services Group



Worcester: history of retrofit

- 1979-82: Worcester is Saving Energy (WISE) Education and air leakage
- 1986-1989: HEAT Loan program CSG administered in Worcester
- 1988-1990: Neighborhood Energy Fitness- Compact Fluorescent Lighting replacement
- 1997-1998: Neighborhood Fitness phase II: Mass SAVE targeted incentives
- 2007: Green Communities Act accelerates services





CSG

- Founded in 1984
- Nonprofit corporation
- More than 650 staff responsible for 5,000+ field jobs nationwide
- Over 2 million homes and facilities served
- Manage the delivery of over \$250 million in energy efficiency and renewable energy programs and projects annually





Home Energy Costs Drive Housing Affordability 2003 to 2008

- Average Household Energy Costs 2002-2003: 3.5% of median income
- Average Household Energy Costs 2007-2008: 8.5% of median income
- Median Household Income: \$60,000
- Increase in Annual Energy Costs: \$3,000





Transportation Energy Cost

- Household miles driven/yr: 40,000
- Miles/gallon: 20
- Gallons consumed: 2,000
- 2002-2003 price: \$1.50/gallon
- 2006-2008 price: \$3.50
- Increase in costs per household: \$4,000/yr





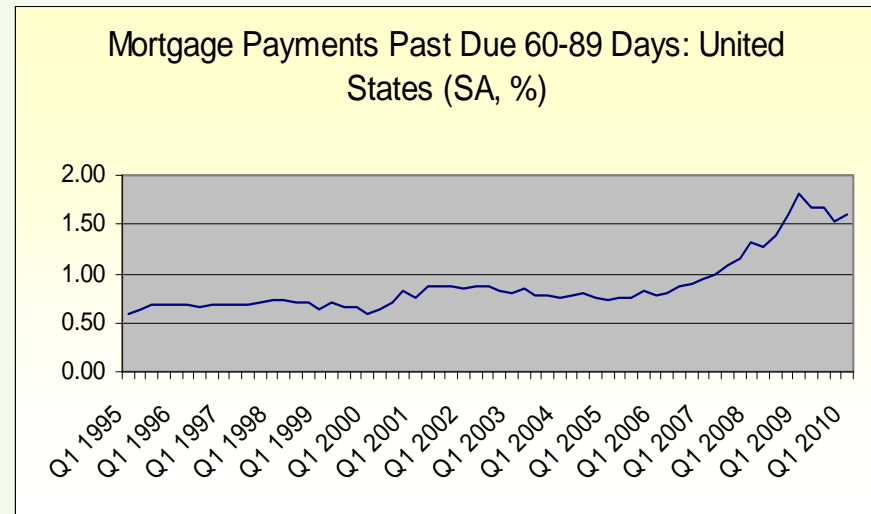
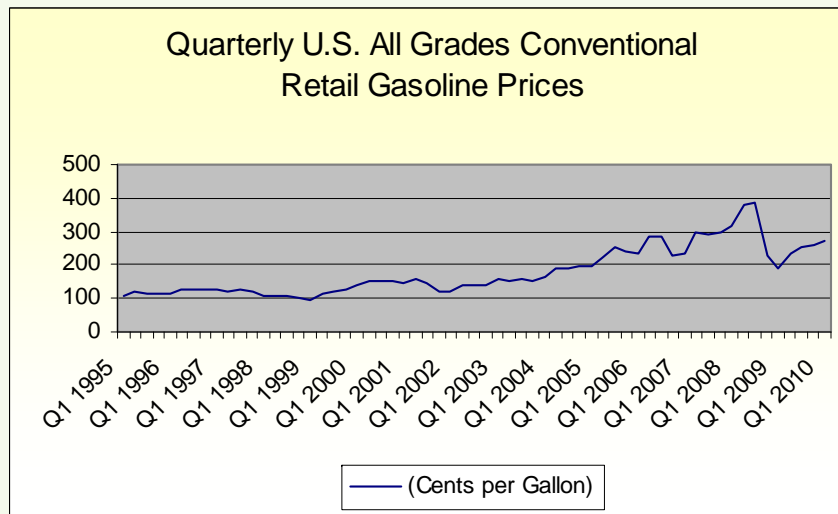
The Result: Economic Meltdown

- American families saw a 12% drop in household income pre-tax and 15% drop post-tax
- This was the only substantial change to the economy
- \$583 per month drop in disposable income
- Any homeowner on a tight budget was pushed over the edge





The Result: Housing crisis, then economic meltdown due to housing-based financial products



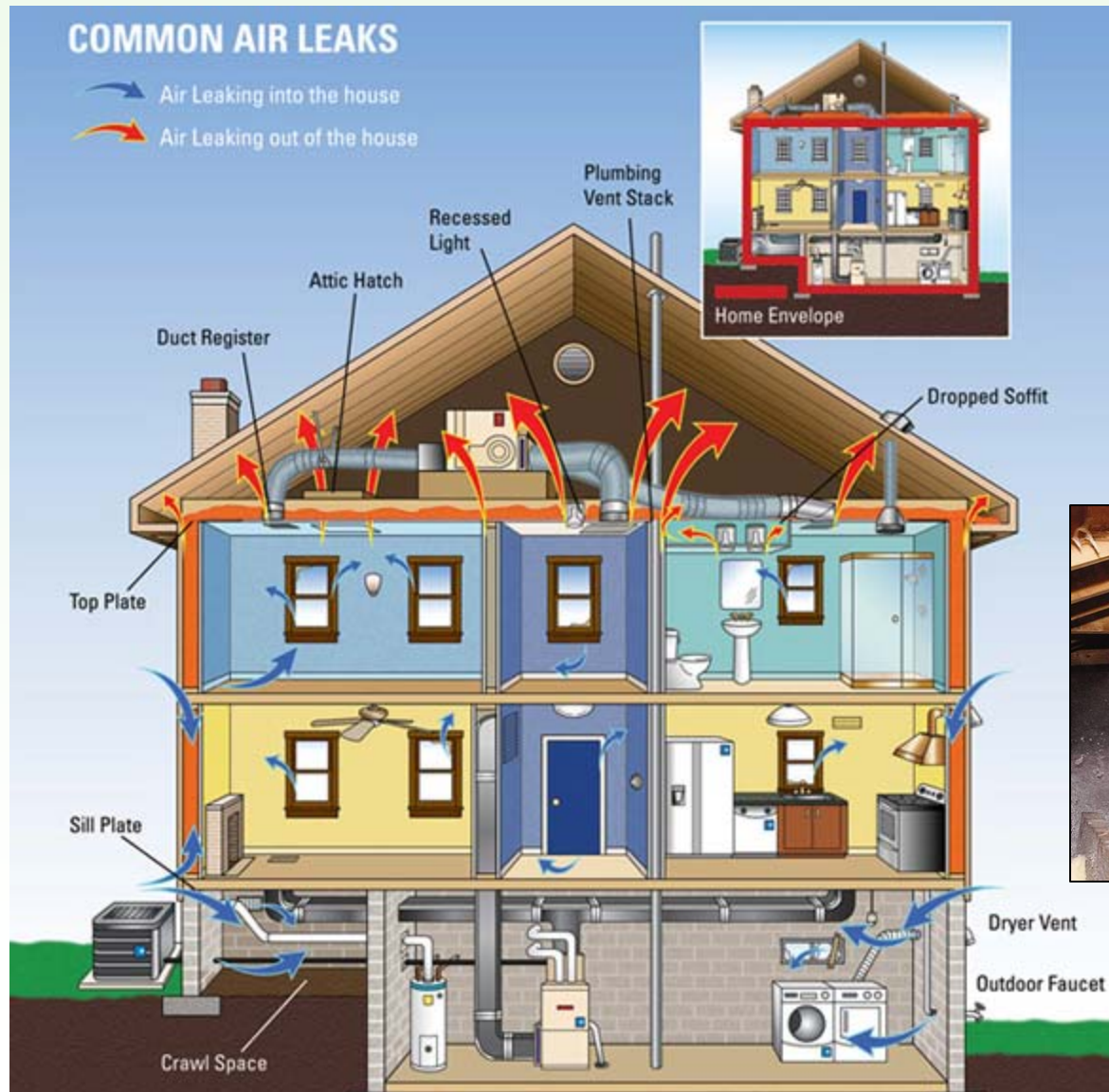


The Answer: Energy Efficiency

- Reduce fuel consumption in homes
- Reduce transportation fuels
- Break the addiction to fossil fuels



What Can Be Done?





Oread Street, Worcester
– 2002

ENERGY STAR Homes



Conservation Services Group



Beacon Street,
Worcester



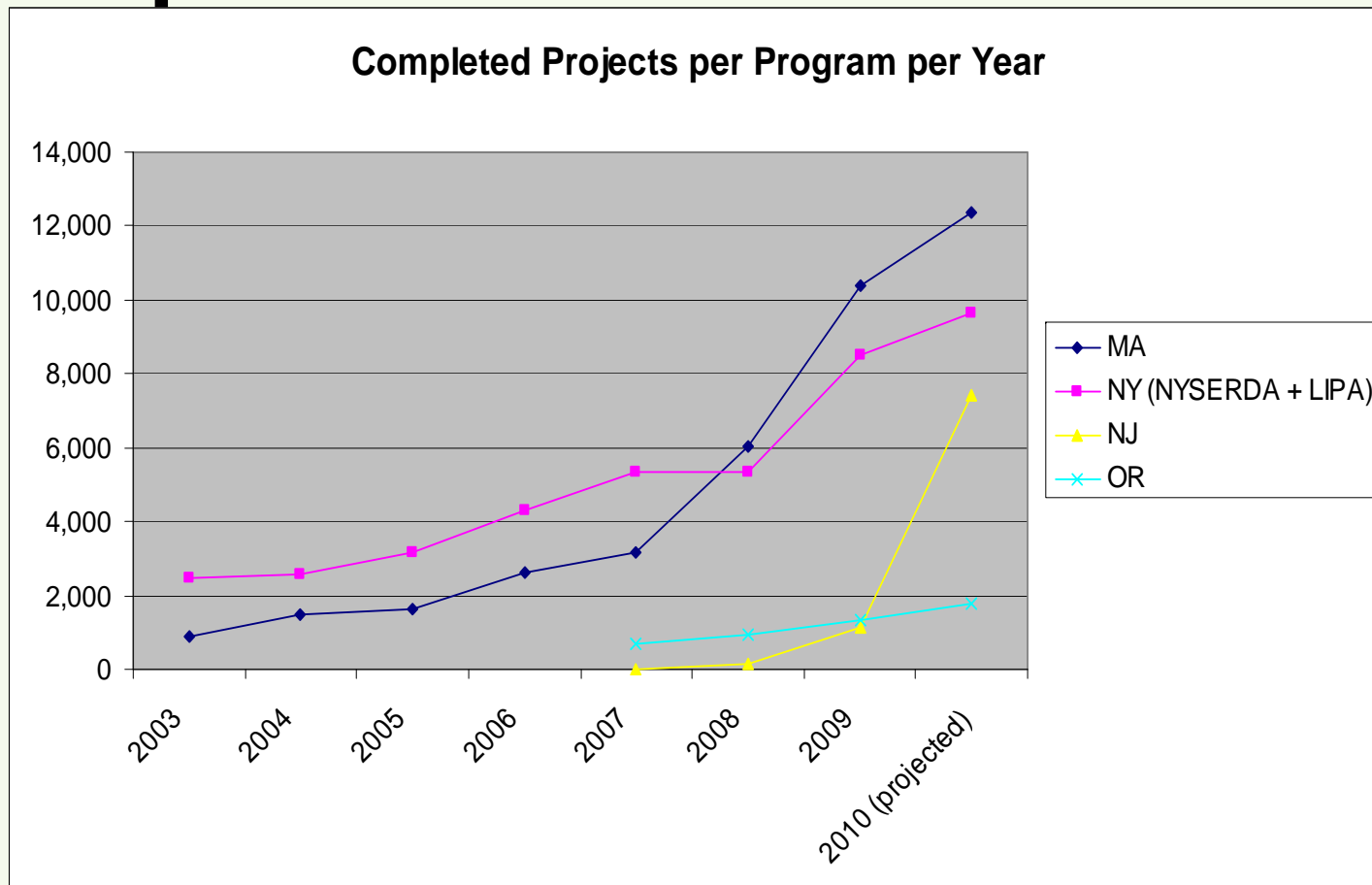
Massachusetts in the Lead

- Low Income Weatherization: LEAN network
 - Administered by local agencies such as WCAC
- Mass Save: Utilities and DOER
- HEAT Loan: Banks working with Mass Save
- Multi-Family retrofit programs
- ARRA funding: Oil Heat Program/Renew Boston



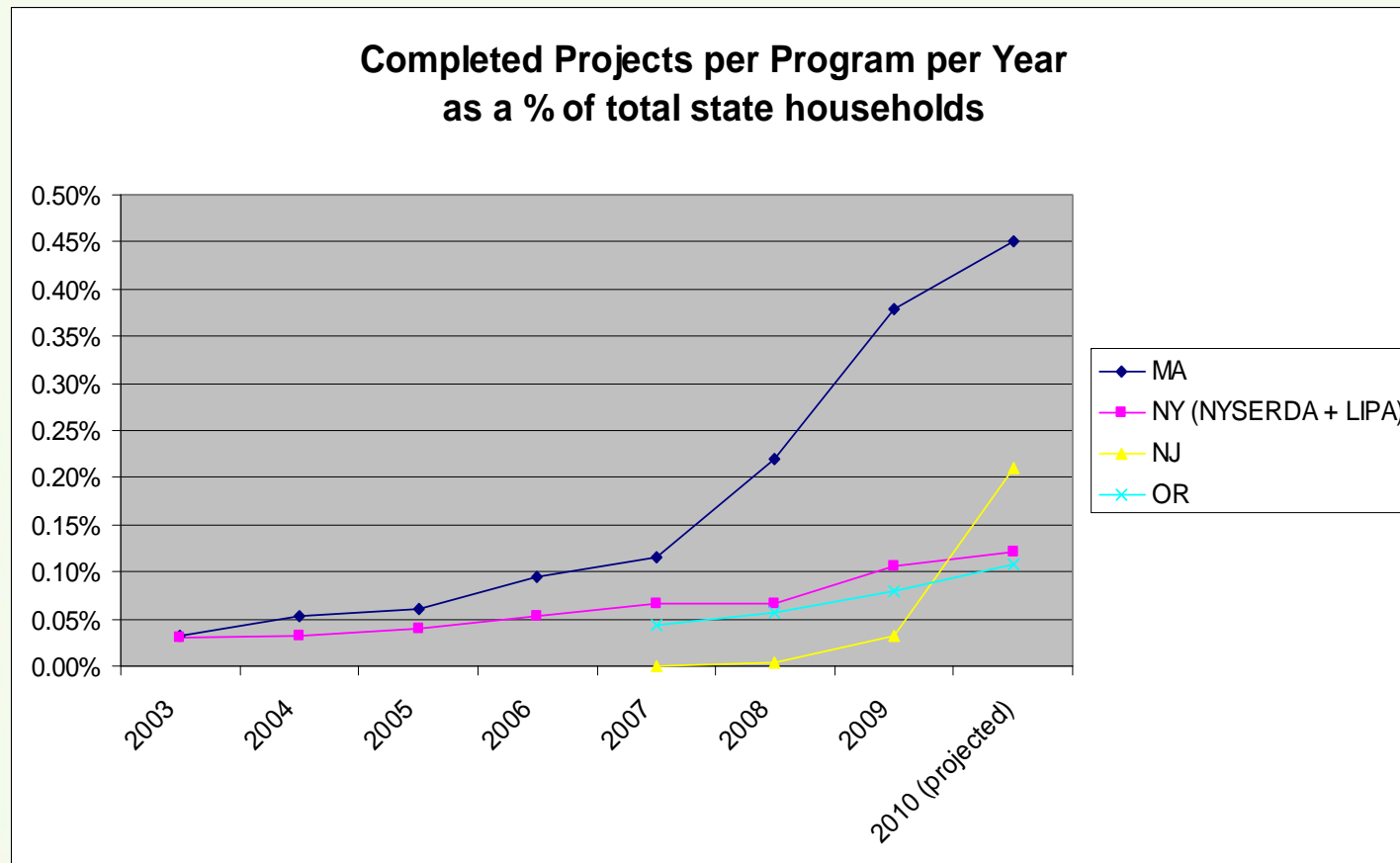


Comparison: MA-NY-OR-NJ





Adjusted for State Population





Oil Heat Efficiency Program



- \$1.7M rebate program funded by the American Reinvestment and Recovery Act of 2009 (ARRA)
- 1 of 11 projects funded through the Massachusetts DOER's \$16.25M State Energy Program (SEP) Grant





Rebates

Equipment	Rebate Amount	Minimum AFUE
Furnace	\$1,500	83%
Steam Boiler	\$2,500	82%
Hot Water Boiler	\$2,500	85%
Tier 2 Supplemental Rebate	\$1,000	> 90%
Indirect-fired Hot Water Tank*	\$500	N/A

*Requires qualifying boiler upgrade



Income Requirement

# Family Members	Qualified Income Bracket	
	Min.	Max.
1	\$ 30,751	\$ 61,502
2	\$ 40,213	\$ 80,426
3	\$ 49,675	\$ 99,350
4	\$ 59,137	\$118,274
5	\$ 68,598	\$137,196
6	\$ 78,060	\$156,120





HOME STAR Triple Win Program Snapshot:

Job Creation, Consumer Savings & Carbon Reductions

HOME STAR
\$6 Billion

- **SILVER STAR**
- **GOLD STAR**
- **Tax Incentives**
- **Financing / QA / Admin**

HOME  **STAR**

Cost:	\$6 Billion
Homes:	3.3 Million
Jobs:	168,000
Homeowner Saving (10 yr.):	\$9.4 Billion
Equivalent Cars Off-Road:	615,000 Cars
Power Generation Offline:	4 x 300MW Plants



SILVER STAR

- Up to a \$1,500 rebate per measure
- Not to exceed \$3,000 or 50% of project
- Minimal Contractor requirements
- Expansion of measure list through legislative process

SILVER STAR - Eligible Measures

Rebate delivered to customer at time of purchase, but paid to installer post completion of job and quality assurance:

- | | |
|--|--|
| <input type="checkbox"/> Air Sealing | <input type="checkbox"/> Windows and Doors |
| <input type="checkbox"/> Duct Seal/Replacement | <input type="checkbox"/> Window Film |
| <input type="checkbox"/> Attic Insulation | <input type="checkbox"/> Wall Insulation |
| <input type="checkbox"/> Domestic Hot Water | <input type="checkbox"/> Floor Insulation |
| <input type="checkbox"/> Heating Equipment | <input type="checkbox"/> Cooling Equipment |



GOLD STAR

- \$3,000 incentive for a 20% savings
- \$1,000 for each additional 5% savings
- Not to exceed 50% of project cost or \$8,000
- Includes all energy savings measures – no limits

1. Energy Assessment

2. Retrofit (measures not restricted)

➤ *Fundamentals*

- Weatherization
- Insulation

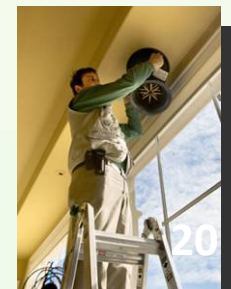
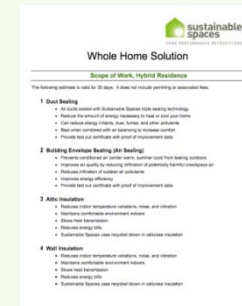
➤ *Major systems*

- Heating / Cooling
- Water Heating

➤ *Renewables*

- Solar

3. Quality Assurance





How Big an Impact?

- Home Star oil savings over measure lifetime will represent over 1 Billion gallons
 - (10X amount of oil spilled in Gulf)



= *Deepwater Horizon disaster*

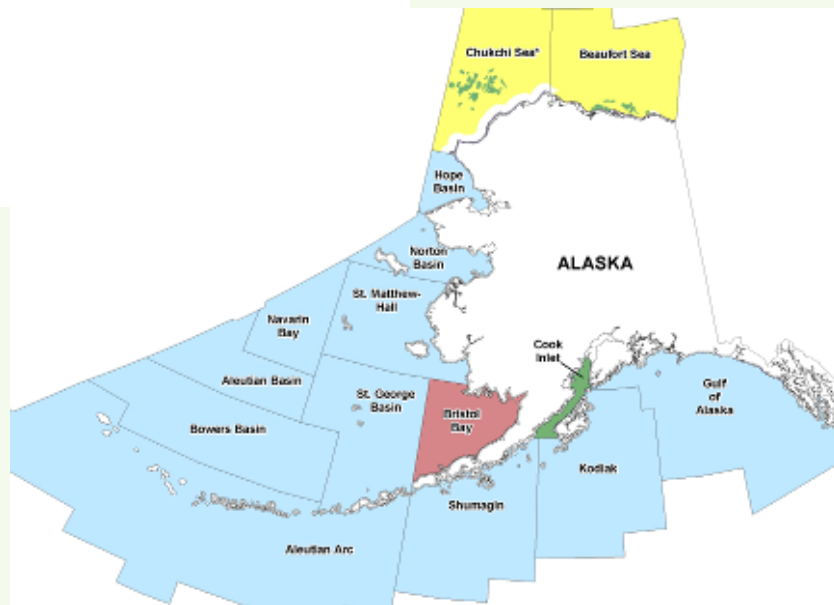


= *Oil saved via Home Star*



Contributing to Energy Independence

- Gold Star residential retrofits of 7.7 million oil-heated homes = equivalent of 40 million barrels of oil per year
 - Equivalent to the entire Outer Continental Shelf oil production in Alaska and Pacific combined





Thank you!

Steve Cowell

stephen.cowell@csgrp.com

508.836.9500 x13259

www.csgrp.com



Conservation Services Group